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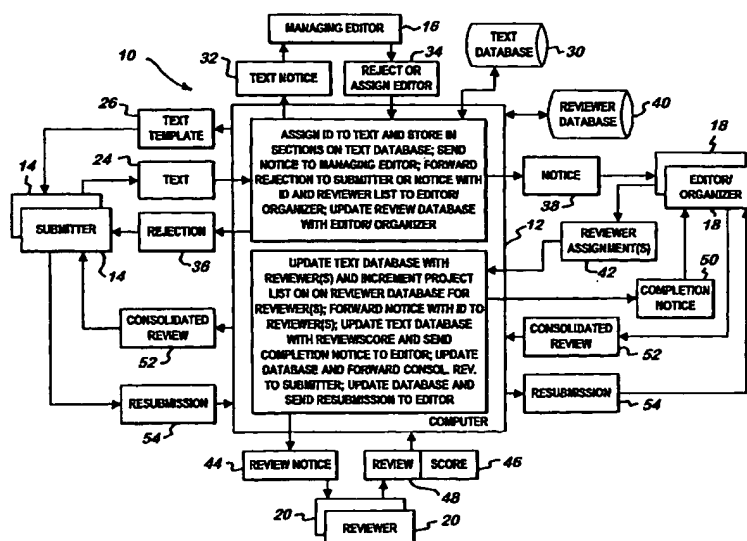
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(54) Title: ELECTRONIC PEER REVIEW AND PUBLICATION OF SCHOLARLY WRITINGS



(57) Abstract: A peer review system for scholarly texts is provided. The system includes a computer (12), a database of reviewers (40), and a program for retrieving a list of reviewers corresponding to the content of the text. The reviewer database (40) preferably includes information concerning an expertise of each reviewer. In another aspect, the invention provides a research retrieval system comprising a database of peer-reviewed articles indexed for retrieval with category information. The peer-reviewed articles may be published together with updates and letters, both of which may also be peer-reviewed. In another aspect, the invention provides a system for organizing a conference for presentation of scholarly research.

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Title of the Invention

ELECTRONIC PEER REVIEW AND PUBLICATION OF SCHOLARLY WRITINGS

Field of the Invention

5 The invention relates to a system for electronically conducting and managing the peer review process for distribution of scholarly research, and more particularly, to a system for improving the processes for both publishing articles as well as organizing conference presentations.

Background of the Invention

10 Peer review of scholarly research prior to publication or presentation is widely considered to be the best way to achieve high quality of content in journals and conferences. The reputation and reliability of a scholarly journal or conference depends on the intellectual quality of its content. Peer review, however, is a very time consuming process with the consequence that important
15 research may not be journal published for up to two years after its completion.

 Several sources of delay exist in the peer review and journal publication process. The first is delay in obtaining the peer reviews. Reviewers are by definition leaders in their chosen field and not only have many demands for their time and attention, but also are typically engaged in their own very important
20 research projects. One reason for delay is simply a lack of reviewer time. They often receive large volumes of mail, including numerous articles/presentations to review. Accordingly, delays may also be caused by the mere fact that reviewers have lost, misplaced or left behind in their office the papers to be reviewed. Management of the peer review process by editors through the mail is therefore
25 equally difficult.

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A second source of delay is the actual printing and distribution of the journal. A journal issue can not be printed until every article to appear in the edition has completed the peer review process. In this regard, a single slow reviewer may effectively delay publication of as many as 10 other papers. Once
5 all the articles are complete, the journal must be laid out, citations checked, indexes and tables of contents generated and the like. Upon completion of the set up and proofing work, time must be reserved at the press location for printing/binding. Journals are virtually never printed daily, but rather are printed periodically, e.g. monthly or quarterly. Delivery is usually by book rate to save
10 money at the expense of additional delay. Problems with delay in publication of peer-reviewed articles are particularly acute in fields such as medicine where early distribution of research could be a matter of life and death.

Conferences have been organized so that abstracts or posters of a research project may be disseminated before full publication of articles. With
15 quick dissemination, however, come risks to the conference, the author and those who would rely on the research that has not yet been fully peer reviewed. Since presentations are abstracted or excerpted from full papers they may omit critical details. Conferences serve an important function by permitting quick dissemination coupled with the ability to directly question a peer about his work
20 with the possibility that cross fertilization may enrich one's own work. Conferences, however, are not a substitution for a complete, peer-reviewed descriptions of a research project. And, indeed, the system for organizing a conference agenda suffers many of the same timeliness difficulties as for journal publication.

25 Another disadvantage with published journal distribution of peer reviewed research is the difficulty in locating a published paper of interest. Learned individuals typically subscribe to several journals directed to their area of expertise. However, articles of interest to them and their research may be published in other journals. The only way for them to identify and obtain access
30 to these articles is by searching published digests of journal articles, such as

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Chemical Abstracts. However, to the extent digests are even available for the journal of interest, they are not compiled and published until well after publication of the journal itself, extending the effective period of delay between completion and distribution of the research. Libraries also face issues such as

5 the cost of subscribing to and storing journal subscriptions.

Online systems, such as MEDSCAPE, alleviate some of these problems, such as the cost of storage, but since this and other online systems typically only distribute either 1) electronic images of articles previously published in journals, or 2) non-peer-reviewed articles, they offer no solution to speeding up

10 either the peer review process or the distribution of peer-reviewed research.

What is desired, therefore, is a system for speeding up the peer review process and for speeding up the distribution of peer-reviewed research. An improved system for timely identification of peer-reviewed research of interest is also desired as is a system for improving the efficiency of compiling a

15 conference schedule.

Summary of the Invention

It is, accordingly, an object of the invention to provide a system for improving the speed of peer review and/or publication/presentation of scholarly writings.

20 Another object of the invention is to provide a system of the above character in which the peer review process is conducted and managed electronically.

A further object of the invention is to provide a system of the above character for electronically assigning, reassigning and managing editors and

25 reviewers.

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Yet another object of the invention is to provide a system of the above character in which a submitter may electronically resubmit a scholarly writing to correct defects identified in the editing process and obtain publication approval.

5 Still another object of the invention is to provide a system of the above character in which a submitter may electronically submit a scholarly writing to supplement a prior published article.

Yet a further object of the invention is to provide a system of the above character in which reviewers and/or editors/organizers categorize submissions with a system tailored to the content of the data to improve the accuracy of
10 retrieval by end users.

Still a further object of the invention is to provide a system of the above character in which a conference organizer can select abstracts/posters based upon the category information.

Still yet another object of the invention is to provide a system of the
15 above character in which a user can pay a fee to have a comment submitted for review and possible publication in response to a published article.

These and other objects of the invention are achieved by provision of a scholarly research peer review system comprising a text, which may be an article or presentation for peer review; a computer for receiving the text; a
20 database of reviewers accessible by said computer; and a program executing on the computer for retrieving a list of reviewers corresponding to the text and for forwarding the list of reviewers to an editor/organizer for consideration of publication/presentation.

The reviewer database preferably includes information concerning an
25 expertise of each reviewer. The program preferably assigns an identifier to the

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text and stores the text and text identifier on a data storage device. Preferably, the computer is connected to the Internet.

In another aspect, the invention provides a peer-reviewed research retrieval system comprising a computer, a publish database accessible by the
5 computer for storing a plurality of peer-reviewed articles; category information stored on the publish database together with each of the plurality of peer-reviewed articles; a category search request received by the computer from a user, and a program executing on the computer for retrieving an article from said plurality of peer-reviewed articles which includes category information
10 corresponding to the category search. The category information preferably includes a selection from among at least basic science and clinical study choices.

Preferably, the category information also includes a selection from among basic science, clinical study, academic, practice management and
15 historical choices. Most preferably, the category information includes a field of knowledge selection from among the various branches of medicine.

In another aspect, the invention provides a peer-reviewed research retrieval system comprising a computer, a publish database accessible by the computer for storing a plurality of peer-reviewed articles, a peer-reviewed
20 update stored on the publish database together with a corresponding one of the plurality of peer-reviewed articles, a search request received by the computer from a user, and a program executing on the computer for retrieving an article and its corresponding update from the plurality of peer-reviewed articles in response to the search request. The system preferably includes a database of
25 user profiles corresponding to users of the system. The system preferably includes a letter received by the computer which pertains to and is stored together with a particular article on the publish database. Preferably, the article from the publish database includes a description of supplies, and wherein hot links to information about the supplies are included in the article text.

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In another aspect, the invention provides a scholarly research conference organizing system comprising a plurality of texts; a computer for receiving the plurality of texts, a database accessible to the computer for storing the plurality of texts, a program executing on the computer for forwarding a text notice to an organizer corresponding to a subject of each of the plurality of texts, a reviewer assignment input to the computer by the noticed organizer for each of the plurality of texts, and a score input to the computer by the assigned reviewer indicative of a level of interest in presentation of each of the plurality of texts at a conference.

10 Preferably, the corresponding organizer decides whether to present each of the plurality of texts at a conference with the aid of the reviewer score for the text. Preferably, several reviewers are assigned to each text, and wherein the organizer makes the presentation decision with the benefit of several reviewer scores.

15 The invention and its particular features and advantages will become more apparent from the following detailed description considered with reference to the accompanying drawings.

Brief Description of the Drawings

20 FIG. 1 is a block diagram of a system for electronically conducting and managing peer review of scholarly research in accordance with the invention.

FIG. 2 is a block diagram depicting publication of a peer-reviewed research in accordance with the system of FIG. 1.

FIG. 3 is a block diagram depicting the editor's management of reviews in accordance with the system of FIG. 1.

25 FIG. 4 is a block diagram depicting the research review process in accordance with the system of FIG. 1.

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FIG. 5 is a block diagram depicting use of the system of FIG. 1 by an end user.

FIG. 6A and 6B are block diagrams depicting user selection of research for review using the category information stored together with the article.

5

Detailed Description of the Invention

FIG. 1 depicts a system 10 for conducting and managing peer review of scholarly research in accordance with the invention. System 10 comprises a computer 12 and group of parties who interact with the computer, namely: ~~submitters 14, a managing editor 16, editors/organizers 18, reviewers 20, and~~ users 22 (see FIG. 5). It is understood, that each of the parties 14-20 may also, of course, be users of system 10. Further, managing editor 16 may, but need not, serve in a dual capacity as an administrator of computer 12. Editors/organizers 18 serve as either organizers of a conference or content editor's of a journal. In some cases, editors 18 may also serve as copy editors, although this is not necessary. It is the interaction of the parties 14-22 with the computer 12 that forms the basis for the invention. After research has been peer-reviewed, the system may be used for article retrieval, article publication and supplementation, and/or conference organization.

Computer 12 may comprise a single computer, a group of computers such as a server farm, or a network of computers of any type, and parties 14-22 may interact with computer 12 directly via a console, over a LAN or WAN connection, a server and thin client arrangement, or a wired or wireless Internet connection. Preferably, the computer is connected to the Internet and includes web and mail servers for distributing the various notices, texts, reviews and the like. A prototype system was implemented using Lotus® Notes® and Domino® software, however, it is understood that many other programming languages, thin client models and groupware products could also be used without departing from the scope of the invention. In this regard, references made throughout this

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description to functions performed by computer 12 are actually carried out by software programs executing on computers. "Programs executing on computers" is meant in a broad sense to include firmware and other hardware components which include hard-wired logic.

- 5 The peer review process begins with submission of a text 24 to computer 12 by a submitter 14. Text 24 is preferably submitted for review in an agreed format, and most preferably is submitted on or in accordance with a text template 26 which is forwarded to a submitter by computer 12 upon request. Template 26 includes a plurality of sections such as abstract, conclusion,
10 method, discussion, results, references, and the like, and category information which are common to all submissions. Text 24 is submitted together with a submitter identifier which identifies submitter 14. If submitted, the category information includes subject information which may be used by the managing editor 16 to assign an editor, and/or by the editor 18 to assign reviewers.
- 15 Upon receipt of a new text 24, computer 12 assigns the text a unique text identifier and stores the text together with the submitter identifier and text identifier in a text database 30. Preferably, text 24 is stored on database 30 in sections according to template 26. The text and submitter identifiers allow the text and review information pertaining to the text to be quickly and easily
20 retrieved by participants in the review process.

- Next, computer 12 forwards a text notice 32 to managing editor 16 notifying her that a new article has been received for peer review. It is understood that articles may comprise abstracts or posters for presentation at a conference, or complete articles for publication, or third party letters/reviews of
25 previously published articles, or author's supplements to previously published articles. Because articles are published on system 10 electronically, the original published article may be appended to include later acquired data in the form of updates, reviews, letters to the editor and the like to present a complete, up to date, peer-reviewed summary of a research project in a single location.

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Managing editor 16 must determine whether the submitted text meets the publication/presentation standards and editorial policy of system 10 at the level of an area of knowledge (see FIG. 6A). Text notice 32 may forward the text directly to managing editor 16 for review, but preferably the notice only provides
5 the managing editor with the text identifier for the article so that the managing editor can retrieve text 26 from database 30 and review it at her leisure. The managing editor's decision 34 either rejects the text or assigns it to an editor based upon the subject matter of the text. It is understood that the subject matter of the text may be determined by the managing editor or may be
10 retrieved from the category information supplied by the submitter.

Computer 12, upon receipt of decision 34 either forwards a rejection 36 to the submitter by retrieving the submitter identifier stored together with the text identifier on database 30, or forwards the assigned editor 18 a notice 38 including the text identifier. Notice 38 also includes a list of reviewers 20
15 retrieved from database 40 which are knowledgeable about the subject matter to which the text pertains. Reviewer database 40 is indexed by expertise of the individual reviewers and computer 12 searches database 40 with information about a subject of the text which is either submitted with text 24 or is determined by managing editor 16.

20 Notice 38 may include a copy of the text to be reviewed but preferably only includes the text identifier so that editor 18 may retrieve text 24 from text database 30 at his leisure. The preferred version of this aspect of the invention provides the additional advantage that the text to be edited is retained in a known place on database 30. The database is accessible to editor 18 as well as
25 any and all of the assigned reviewers from any computer at any location with, e.g., access to the Internet where computer 12 is connected to the Internet. In this regard, loss of, and forgetfulness with respect to the location of, the material to be edited/reviewed is effectively eliminated as a source of delay in the peer-review process.

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Editor/organizer 18 makes a reviewer assignment 42 based upon matching a subject matter of text 24 with expertise of individual reviews 20. Editor/organizer 18 may also give consideration to pre-existing review assignment workload and turn-around rates in determining who to assign to review any new text. The number of assigned reviewers and the content of their reviews will depend upon the publication/presentation standards and editorial policy of system 10 at the level of a field of knowledge (see FIG. 6A). It is understood that a single editor/organizer 16 may be responsible for one or several conferences and/or journals.

Upon receipt of reviewer assignment(s) 42, computer 12 updates the record on text database 30 with the assigned reviewers to provide them address rights, and increments a project listing for the assigned reviewers on reviewer database 40 to update workload. Computer 12 also forwards a review notice 44 to reviewers 20 (typically, although not necessarily, there are multiple ones assigned) which includes the text identifier, enabling the reviewers to retrieve the text at their leisure. The reviewers may either know from the context or may be instructed by the editor in review notice 44 as to the scope of their task. For example, if the review notice is for a poster/abstract for a particular presentation for a conference organizer or the like, reviewer 20 will know they need only provide a score 46 for the text relative to other texts they have received.

Alternately, if the review notice is for a full article, for a journal, for a journal editor or the like, reviewer 20 will know they need to provide a complete review 48 of each section of the text including the category information and a suggested decision on publication. The suggested decision on publication preferably takes the form: 1) publish, 2) do not publish, 3) publish with this correction, etc.

To facilitate further ordering, score 46 and complete review 48 are preferably input to computer 12 by reviewers 20 using a template or agreed format. Upon receipt, the computer updates text database 30 to include the

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review/score, and preferably also sends a completion notice 50 to editor/organizer 18 either upon completion of each or upon completion of all of the reviews/scores for a particular text. Editors/organizers can issue system commands to alter completion notice options. For example, the editor organizer
5 can use notices after each submission to track status of a peer-review process and/or can use notices after receipt of all submissions as a tickler to generate a consolidated review 52. Consolidated review 52 takes the same form as each individual review 48 or score 46, and respectively comprises a combination of the reviews or an average score.

10 Upon completion, editor/organizer 18 forwards consolidated review 52 to computer 12 which stores the review together with the corresponding text on database 30. Particularly if it is desirable to save storage space on database 30, each of the individual reviews 48 and scores 46 may be deleted or archived at this or some future time. Computer 12 also forwards consolidated review 52
15 or a notice relating thereto to submitter 14.

 If the consolidated review 52 includes a decision that text 24 could be published if corrected, then submitter 14 has the option to provide the corrected information in a resubmission 54 which is stored on database 30 and forwarded to editor/organizer 18 upon receipt by computer 12. Following consideration by
20 editor/organizer 18, a revised consolidated review is prepared and input to computer 12 in an iterative process.

 Referring now to FIG. 2, if editor/organizer 18 decides to publish/present text 24, then the text is copy-edited by a copy editor 18'. It is understood that copy editor 18' may be the same or a different person than editor/organizer 18.
25 When all changes and corrections have been made to the text, copy editor 18' generates a publish approval 54 which is input to computer 12. The changes and corrections made by the copy editor may originate from the consolidated review, resubmission, and/or proofreading. Where texts 24 are articles and not solely abstracts/posters, and upon receipt of publish approval 54, text 24 and its

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corresponding category information is moved from a text database 30 to a publish database 60 where it is immediately published and made electronically available, e.g., via the Internet. Upon publication, a publication notice 62 is forwarded to submitter 14 by computer 12.

5 Where at least some of texts 24 are abstracts/posters, and the system is intended for organization of a conference or society meeting, publish database may be replaced by or supplemented with a conference calendar and/or agenda which may, but need not, be published electronically in advance of the conference.

10 Referring now to FIG. 3, use of system 10 by an editor 18 to manage the peer review process is depicted. As indicated at 64, by presenting an identifier (ID) for authentication by computer 12 and an appropriate request, editor 16, 18 can obtain a status report 66. Status reports provide valuable information for speeding the peer review process along. The types of data which may be made
15 available include: the reviewers assigned to each text, when the assignment was made, whether the review and/or consolidated review was completed, the number of texts awaiting review by each reviewer, the number of texts assigned to each editor, the editors' specialties, the reviewers' specialties, status of copy editing, other presentations scheduled for the meeting, and other information
20 useful in tracking and managing.

 In response to the status report information, editor 18 can issue a reviewer assignment change 68 as needed or desired to manage the peer review process. If an assignment change 68 is issued, computer 12 updates text database 30 and reviewer database 40, and notifies the affected reviewers
25 with a change notice 70. It is understood though not specifically illustrated, that a managing editor 16 may use the review process of FIG. 3 in a similar manner to change editors.

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Referring now to FIG. 4, details of the text reviewing process, especially where the text is an article for publication, are illustrated. Preferably, computer 12 includes a personal area, most preferably in web space, where reviewer 20 can retain his work in progress (WIP). A reviewer's WIP may include a number
5 of different reviews in varying stages of completion. The reviewer's personal area may include links to each review in process, the underlying text for each review, dates on which the review was requested and/or is due to be completed. The status of other reviewers' reviews may also be displayed or available, as well as the editor's consolidated review for texts reviewed by the reviewer. By
10 retaining this information on a central computer, it can be more or less continuously updated and available for review and continued work by any authorized person from any location.

As indicated at 44 in FIG. 4, the review notice may include an identifier or link to the article to be reviewed. In the alternative, however, it is understood
15 that the identifier or link may simply be provided for a reviewer in his personal space or computer 12. To obtain access to this personal space or information, a reviewer provides a reviewer identifier 72 which may but need not be simultaneously input to computer 12. Identification 72, which may take the form of a username and password, is used to authenticate the reviewer and
20 determine which texts he is authorized to access on database 30.

If the submitted text identifier, which may take the form of a document or key number, matches an authorized text for an authenticated user, then the text is provided to reviewer 20 preferably in sections (see 74) matching the format of template 26 (see FIG. 1). In addition to the text, reviewer 20 may also obtain
25 access to the review in progress for the text and possibly other status information.

The review 48 made of the text by reviewer 20 is organized with comments and corrections in sections which match those of the text template. Review 48 also includes category information supplied by reviewer 20 as well as

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a recommendation on publication of the text. Upon submission to computer 12, review 48 is stored on database 30 together with a corresponding one of texts 24. As described with reference to FIG. 1, completion notice 50 is forwarded to editor 18 as desired. Also, a project list for the reviewer is decremented on
5 reviewer database 40, so that the reviewer is presumably more likely to obtain additional review assignments.

Editors may receive completion notice via electronic message such as email and/or when they connect to computer 12. Similar to reviews 20, editors 18 preferably have personal space on computer 12 such that notice 50 may be
10 received upon authentication, whether or not the notice was also received, e.g., by email. When notice 50 indicates that all reviews have been submitted, editor 18 is informed that it is time to complete her consolidated review. If notices 50 are configured for completion of each review, either computer 12 or editor 18 may keep track of when reviews have been submitted by all assigned reviewers.
15 If notices 50 are configured for completion of all versions, then its receipt by editor 18 is a call to complete the consolidated review.

To prepare consolidated review 52, editor 18 inputs an identifier at 76, which may take the form of a username and password, for authentication to computer 12. The computer uses the identification to determine which texts
20 among those on database 30 are authorized for access by editor 18. In this regard, drafts of the consolidate review are stored together with the corresponding text 24 and each of the individual reviews. In the case where the "editor" is a conference organizer, a conference schedule may be assembled and stored in the organizer's personal space.

25 Editor 18 may either select the text identifier or link from her personal area or, as indicated on the drawing, submits the text identifier at 76 to computer 12. It is understood that the text identifier may be input together with, before or subsequent to the editor identifier. Upon request of an authenticated, authorized user, computer 12 permits access by editor 18 to the text and individual reviews

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78, and to drafts of the consolidate review for completion. Consolidated review
52 comprises a combination, or a section by section basis, of the comments and
correction included in the individual reviews as well as those of the editor and
possibly also those of the copy editor. The consolidated review also includes
5 the final category information used for indexing and retrieval of the text, and the
final publication decision of: publish, do not publish, or publish with corrections.
If the decision is to publish the text, then a notice and/or the text is sent to a
copy editor in the event editor 18 does not herself copy edit the article together
with the changes and corrections included in the consolidated review.

10 Referring now to Fig. 5, once a text has been published/scheduled for
presentation, it is available to be searched and retrieved by users. The system
preferably provides different rights and privileges to casual and registered users.
For example, casual users may be able to search and identify, but not retrieve
articles without becoming a registered user. In this way, a casual user can
15 experiment with system 10 and experience first hand the superior search and
retrieval system explained below with reference to FIGS. 6A-6B.

The costs of supporting these casual searches may be reduced by
limiting the number of simultaneous connections to computer 12 and/or by
selling banner advertisements/links on the pages viewed by the casual user.
20 These policies may be set and modified by managing editor 16 or another
authenticated system administrator by issuing appropriate system commands to
computer 12. Managing editor 16 may also elect not to permit any casual
searching, but rather to offer an FAQ or demo as an enticement for the casual
user to register.

25 Ordinarily, but not necessarily, a casual user 22 may register online
directly with computer 12 by agreeing to a user policy and providing basic
information and a credit card for changing retrieved articles. A registration
template 80, which may but need not include a user policy, is forwarded to a
casual user by computer 12 upon request. Upon supplying the required data,

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user 22 submits registration 82 for processing. If the registration request is in order, a user identifier 84, which may take the form of a username and password, is issued to user 22 for purposes of authentication to computer 12. Upon completing a search, a user is presented with the category information of each "hit" and preferably also a brief summary of the text. Only if a registered user decides to retrieve the full text of the article is he charged. In a library setting, payment terms may vary so that, for example, all texts for a particular journal are available for full text retrieval on a single terminal in return for a subscription rate.

10 The cost of a registered user's searches may also be offset by advertising, but the complete text preferably will not include advertising, but may include links to products and manufacturers explicitly mentioned in the text for a fee paid by the manufacturer. Most preferably, such a link will not affect or alter an original version of the text when printed in hardcopy and is unobtrusive while
15 viewing an electronic version of the text, e.g. a color of the linked words may be different.

 Citations to the bound version of the text are provided upon payment and retrieval of the full version of the article, and may or may not be provided upon presentation of search results as set with commands by an authenticated
20 administrator. It is preferred that the citations only be provided with search results in exchange for payments received by the publisher of the bound volumes. However, since the electronic version will be available months prior to the print version, administrators may elect to present the "citation" in order to demonstrate that none yet exists and thereby highlight an advantage of system
25 10.

 Returning to FIG. 5, upon authentication of a user 22 by computer 12 with user identifier 84, computer 12 presents the authenticated user with his personal profile 86. Profile 86 includes personal space on a user database 90

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for storing search logic, search results, retrieved articles, excerpts of retrieved articles, drafts of texts for submission to system 10, and other work product.

Profile 86 may also provide email, proof reading, abstracting, hard copying, binding, indexing, delivery and other services relating document
5 handling, document management, publishing and distribution.

An authenticated user may issue commands 92 to computer 12 in order to create and organize folders, save, edit and create text, order services and the like. In addition to commands relating to profile 86, an authenticated user also issues search and retrieval commands in order to obtain texts from publish
10 database 60.

Many different types of searching a text database are known and all may be used with this invention. Referring to FIGS. 6A and 6B, a particular type of category search is disclosed which provides superior results for identification and retrieval of peer-reviewed research and especially for medical research. If
15 no category search is requested, system 10 continues at 96 to await a further command or request. If a category search is requested, a user must first select at 98 an area of knowledge 100. In some cases, e.g. an entire web site or computer 12 may be devoted to a single area of knowledge 100, such as medicine. In other cases, however, it is understood that a single site may serve
20 as a conglomeration of other sites or as a source of information from multiple areas of knowledge.

Next, at 102, a user selects a field of knowledge 104, such as cardiology, orthopedics, etc. where the area of knowledge selected at 103 is medicine, where the area of knowledge selected is not medicine, the category search
25 continues at 105. For the remainder of FIGS. 6A-6B, it is assumed that the selected area of knowledge is medicine in order to demonstrate how the hierarchy of category information is closely tied to content of the texts, i.e. the area of knowledge, in order to improve search and retrieval. At 106, user

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selects a class of report 108. For medicine, the classes of report are clinical, study, basic science, academic/administrative, practice management, history, other. Each of the classes of report are common to each of the fields of knowledge. In contrast, each of areas of knowledge take a different set of fields
5 of knowledge.

Depending upon the class of report selected, a user is presented with numerous additional choices for narrowing his search request which are specific to the selected class of report.

If the selected class of report is clinical study at 110, then the choices are
10 type 112, size 114, design 116, control population 118, data analysis method 120 and study population 122. Any number of these choices 112-122, including all or none of them, may be selected.

Options for type choice 112 are surgical treatment, surgical technique, non-surgical treatment, diagnostic technique, observational/risk factors/natural
15 history, and economic impact/quality of life. Any number of options may be selected for the type choice. Options for the size choice 114 are case report, services of patients <10, 11-50, and >50. Only one of the size options may be selected. Options for design choice 116 are retrospective and prospective and only one may be selected. Options for the control population are no controls,
20 historical controls, concurrent comparison, concurrent non-randomized and randomized. Concurrent non-randomized is only an option for prospective designs and randomized is only an option for retrospective designs. Options for data analysis are not blinded, single blinded, double blinded, and outcomes instrument used. Outcomes instrument is a yes/no check box and a single one
25 of the other data analysis methods may be selected. Options for study population are pediatric, adult, female, male and any number of these may be selected.

If the selected class of report is basic science at 124, then the choices are subject 126, type 128, and method/source 130. Any number of choices 126-130, including all or none of them, may be selected. Options for subject choice 126 include biology, bioengineering, tissue engineering, anatomy and genetics.

- 5 A single selection is permitted among the subject choices. Options for type choice 128 include experimental, observational, technique and theoretical/modeling. Any number of selections may be made for the type choice. Options for method/source choice 130 include human, animal, bacterial-viral and non-living, and a single selection is permitted.

- 10 If the selected class of report is academic/administrative at 132, then a type choice may be made at 134 between education and research.

If the selected class of report is other science at 136, then a type choice may be made at 138 between article and editorial.

- 15 Hierarchy 94 represents system for retrieving texts indexed according to category information. In this regard, the category information fixed during the peer-review process is used to index the articles for search and retrieval. Because the system was designed by medical professionals and customized for use with medical content, it provides improvements over so-called "natural language" query methods which are not customized for content of the data.

- 20 While the invention has been described with reference to a particular arrangement of parts, features and the like, these are not intended to exhaust all possible arrangements or features, and indeed many other modifications and variations will be ascertainable to those of skill in the art. As an example of several such variations, system 10 could be used to implement an Institutional
- 25 Review Board (IRB) and/or an Institutional Animal Care & Use Committee (IACUC). IRBs and IACUCs review and approve, reject, or conditionally approve research programs and/or treatment options in hospitals and veterinary clinics. It is understood that Board/Committee members would take the place of

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reviewers while the Chairman would take the place of editors in order to provide "peer review" of nonstandard procedures desired to be performed by submitting doctors.

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What is claimed:

1. A scholarly research peer review system comprising:
a text for peer review;
a computer for receiving said text;
a database of reviewers accessible by said computer; and
5 a program executing on said computer for retrieving a list of reviewers corresponding to said text and for forwarding the list of reviewers to an editor.
2. ~~The peer review system of claim 1 wherein said reviewer database~~ includes information concerning an expertise of each reviewer.
3. The peer review system of claim 2 wherein said text includes a subject identifier and wherein said program retrieves reviewers from said reviewer database whose expertise matches the subject identifier.
4. The peer review system of claim 3 wherein the text is submitted to said computer in a template form which includes a subject field for the subject identifier.
5. The peer review system of claim 1 including a text database accessible to said computer for storing data, and wherein said program assigns an identifier to said text and stores said text and text identifier on said device.
6. ~~The peer review system of claim 5 wherein said text database includes~~ at least one review stored together with the corresponding text and text identifier, and further comprising a consolidated review prepared by the editor from said at least one review, said consolidated review including a text
5 identifier and forwarded to said computer by the editor.

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7. The peer review system of claim 6 wherein said text database includes a submitter identifier stored together with the corresponding text and text identifier, wherein said program identifies a submitter corresponding to the text identifier forwarded by the editor and sends said consolidated review to
5 the submitter of the text.
8. The peer review system of claim 7 further comprising a resubmission including a text identifier forwarded to said computer, said resubmission prepared by the submitter in response to the consolidated review.
9. The peer review system of claim 8 wherein said program identifies the editor corresponding to the text identifier received from the submitter and sends the resubmission to the editor for reconsideration of publication.
10. The peer review system of claim 6 wherein said consolidated review is prepared by the editor from a plurality of reviews received from a plurality of reviewers.
11. The peer review system of claim 10 wherein said consolidated review is stored on said text database together with said text and the corresponding text identifier.
12. The peer review system of claim 11 wherein said program deletes the plurality of reviews from said text database when a corresponding consolidated review is stored on said text database for a particular text identifier.
13. The peer review system of claim 11 wherein said consolidated review includes categorization information for indexing said text.

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14. The peer review system of claim 13 wherein each of the plurality of reviews include categorization information and a suggested publication decision.
15. The peer review system of claim 14 wherein said consolidated review is prepared in sections corresponding to sections of said text.
16. The peer review system of claim 11 wherein said consolidated review includes a publication decision.
17. The peer review system of claim 16 further comprising a publish database for storing texts published on the system, and wherein said program switches said text from said text database to said publish database in response to the publication decision.
18. The peer review system of claim 1 wherein the editor selects at least one reviewer from the list of reviewers and forwards the selection to said computer.
19. The peer review system of claim 18 wherein said program retrieves an address of the selected reviewer from said reviewer database and forwards a notice regarding the selection which includes the text identifier.
20. The peer review system of claim 18 wherein the editor selection includes an editor identifier.
21. The peer review system of claim 20 wherein an editor may present an editor identifier and a text identifier to said computer for authentication by said program, and wherein the editor may thereafter obtain a status report on the peer review process for the text corresponding to the identifier.

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22. The peer review system of claim 21 wherein the authenticated editor may reassign said text for review by another reviewer.
23. The peer review system of claim 22 wherein said program, in response to a reviewer reassignment, prepares and forwards a change notice to an affected reviewer.
24. The peer review system of claim 22 wherein said program, in response to a reviewer reassignment, deletes a prior reviewer's identifier from a record corresponding to said text on a text database and replaces it with a new reviewer's identifier.
25. The peer review system of claim 1 wherein said computer is connected to the Internet.
26. A peer-reviewed research retrieval system comprising:
a computer;
a publish database accessible by said computer for storing a plurality of peer-reviewed articles;
5 category information stored on said publish database together with each of the plurality of peer-reviewed articles, said category information includes a selection from among at least basic science and clinical study choices;
a category search request received by said computer from a user; and
10 a program executing on said computer for retrieving an article from said plurality of peer-reviewed articles which includes category information corresponding to said category search.
27. The research retrieval system of claim 26 wherein said category information includes a selection from among basic science, clinical study, academic, practice management and historical choices.

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28. The research retrieval system of claim 27 wherein said category information selection is clinical study, and wherein said category information further comprises a sub-selection from among size and data analysis choices.

29. The research retrieval system of claim 28 wherein said category information selection is clinical study, and wherein said category information further comprises a sub-selection from among type, size, control population, and data analysis choices.

30. The research retrieval system of claim 29 wherein said category information selection is clinical study, and wherein said category information further comprises a sub-selection from among type, size, design, control population, data analysis, and study population choices

31. The research retrieval system of claim 27 wherein said category information selection is basic science, and wherein said category information further comprises a sub-selection from among subject, type and method/source choices.

32. The research retrieval system of claim 26 wherein said category information includes a field of knowledge selection from among the various branches of medicine.

33. The research retrieval system of claim 26 wherein said computer is connected to the Internet.

34. The research retrieval system of claim 26 wherein said category information includes an area of knowledge selection.

35. A peer-reviewed research retrieval system comprising:
a computer;

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- a publish database accessible by said computer for storing a plurality of peer-reviewed articles;
- 5 category information stored on said publish database together with each of the plurality of peer-reviewed articles;
- an update stored on said publish database together with a corresponding one of the plurality of peer-reviewed articles;
- a search request received by said computer from a user; and
- 10 a program executing on said computer for retrieving an article and its corresponding update from said plurality of peer-reviewed articles in response to the search request.

36. The research retrieval system of claim 35 further comprising a database of user profiles corresponding to users of the system.

37. The research retrieval system of claim 36 wherein said user profiles include stored searches and folders.

38. The research retrieval system of claim 36 further comprising a user identifier received by said computer, and wherein said program authenticates the user and retrieves a profile corresponding to the user from said user database.

39. The research retrieval system of claim 38 further comprising a command received by said computer from a user for modifying the user's profile.

40. The research retrieval system of claim 35 further comprising a letter received by said computer which pertains to a particular article on said publish database, and wherein the letter is peer-reviewed and stored on said publish database together with the particular article.

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41. The research retrieval system of claim 40 wherein said program retrieves letters pertaining to retrieved articles in response to a search request.
42. The research retrieval system of claim 40 wherein a payment is made by a user upon submission of the letter for peer review.
43. The research retrieval system of claim 35 wherein an article from said publish database includes a description of supplies, and wherein hot links to information about the supplies are included in the article text upon payment of a fee by a manufacturer of the supply.
44. A scholarly research conference organizing system comprising:
a plurality of texts;
a computer for receiving said plurality of texts;
a database accessible to said computer for storing said plurality of
5 texts;
a program executing on said computer for forwarding a text notice to an organizer corresponding to a subject of each of the plurality of texts;
a reviewer assignment input to said computer by the noticed organizer for each of the plurality of texts; and
10 a score input to said computer by the assigned reviewer indicative of a level of interest in presentation of each of the plurality of texts at a conference.
45. The conference organizing system of claim 44 wherein the corresponding organizer decides whether to present each of the plurality of texts at a conference with the aid of the reviewer score for the text.
46. The conference organizing system of claim 45 wherein several reviewers are assigned to each text, and wherein the organizer makes the presentation decision with the benefit of several reviewer scores.

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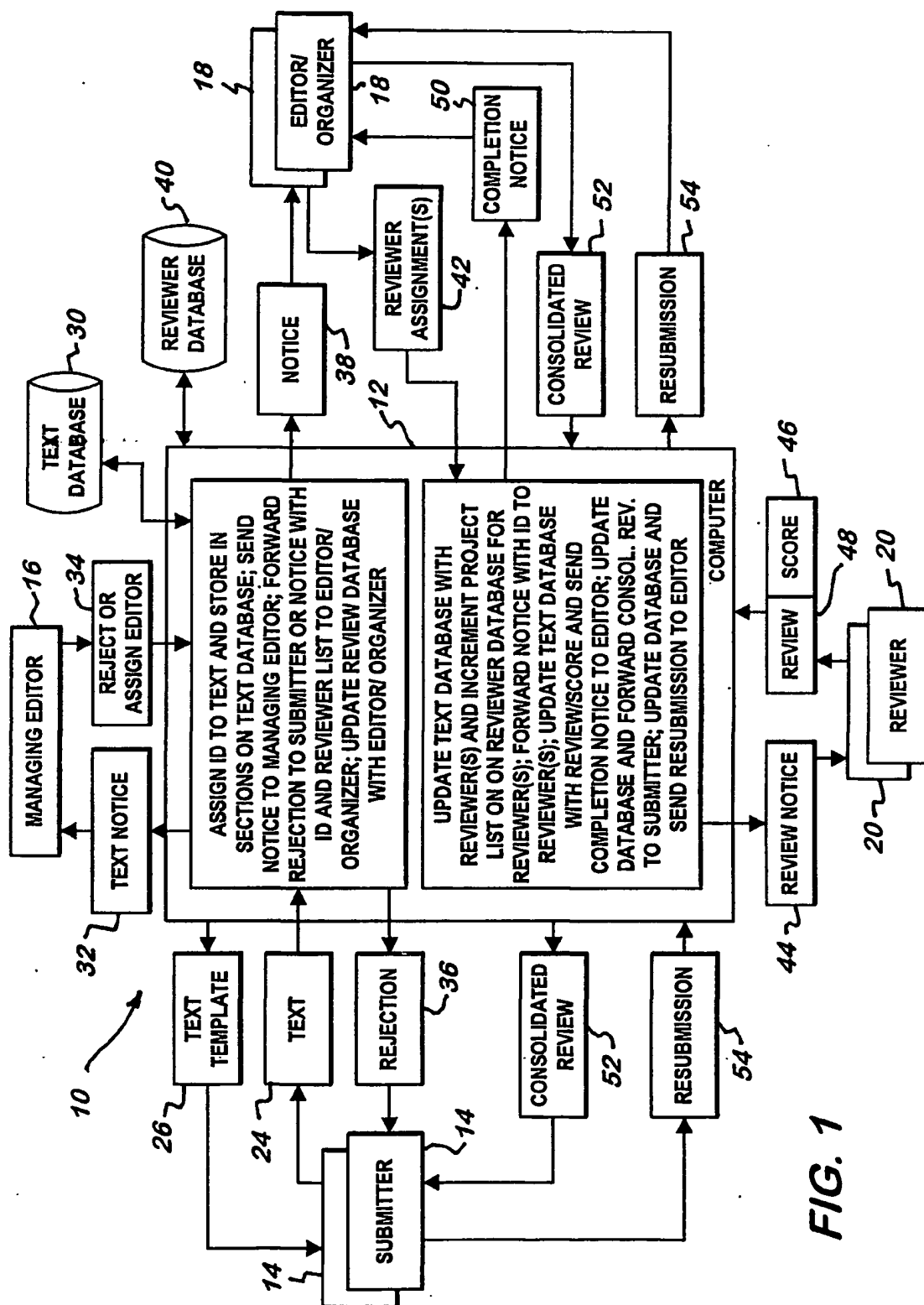


FIG. 1

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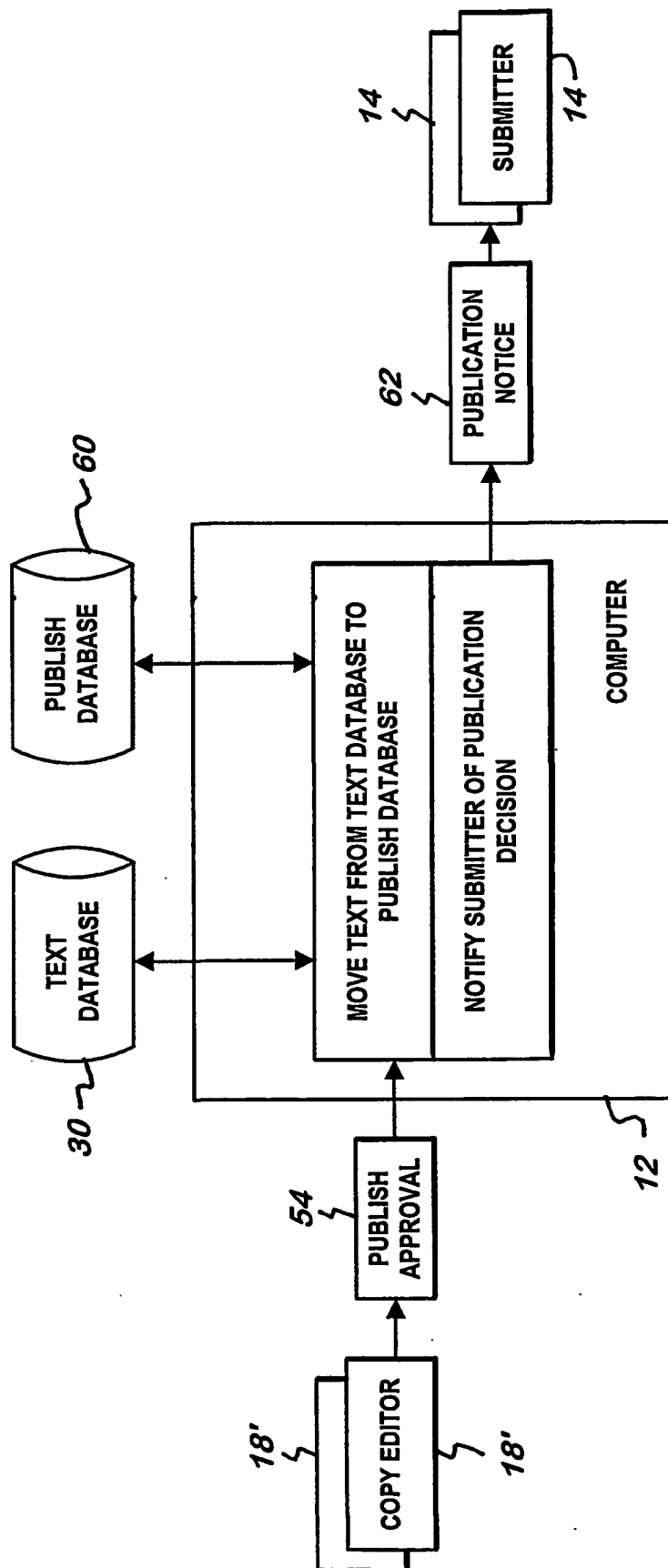
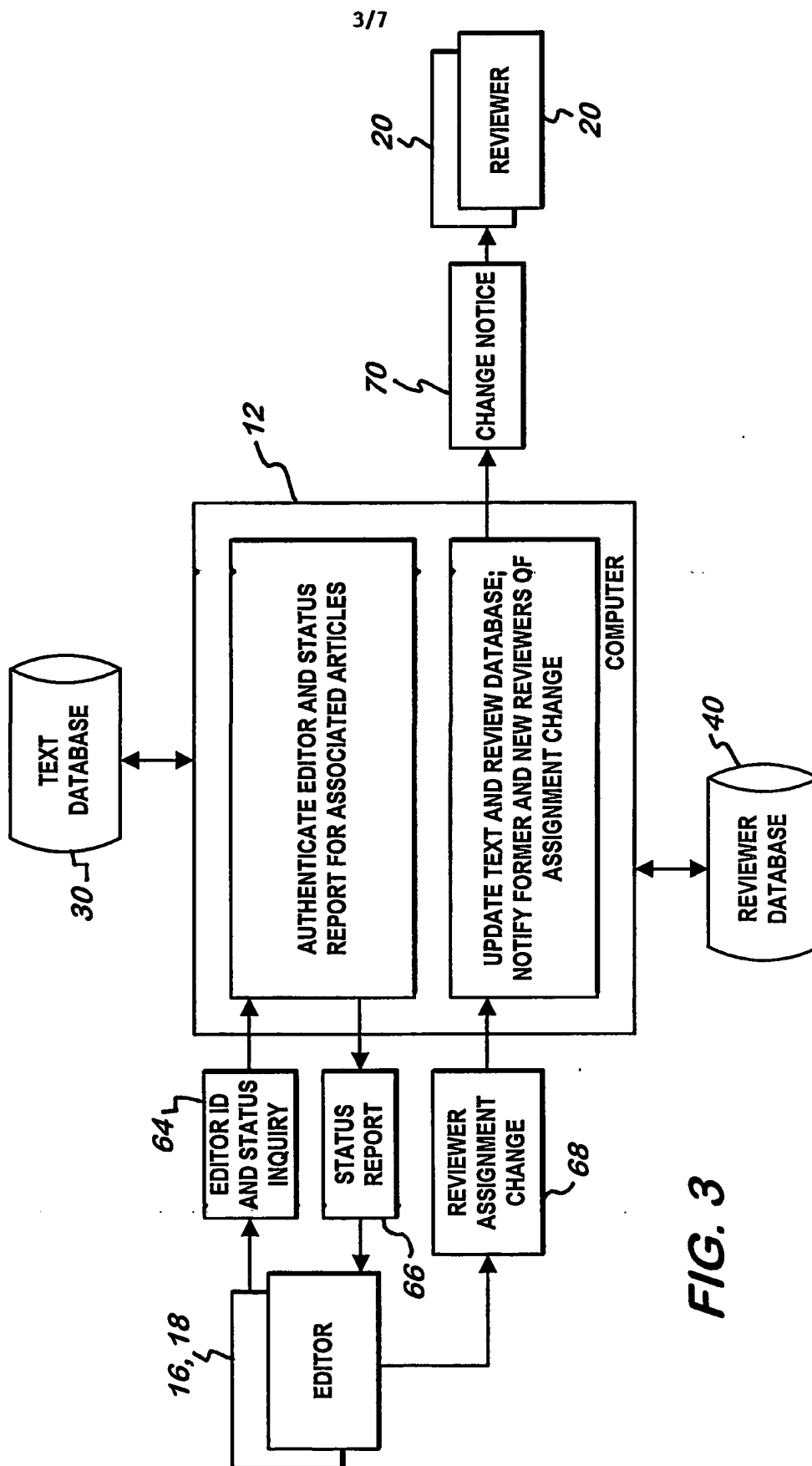


FIG. 2



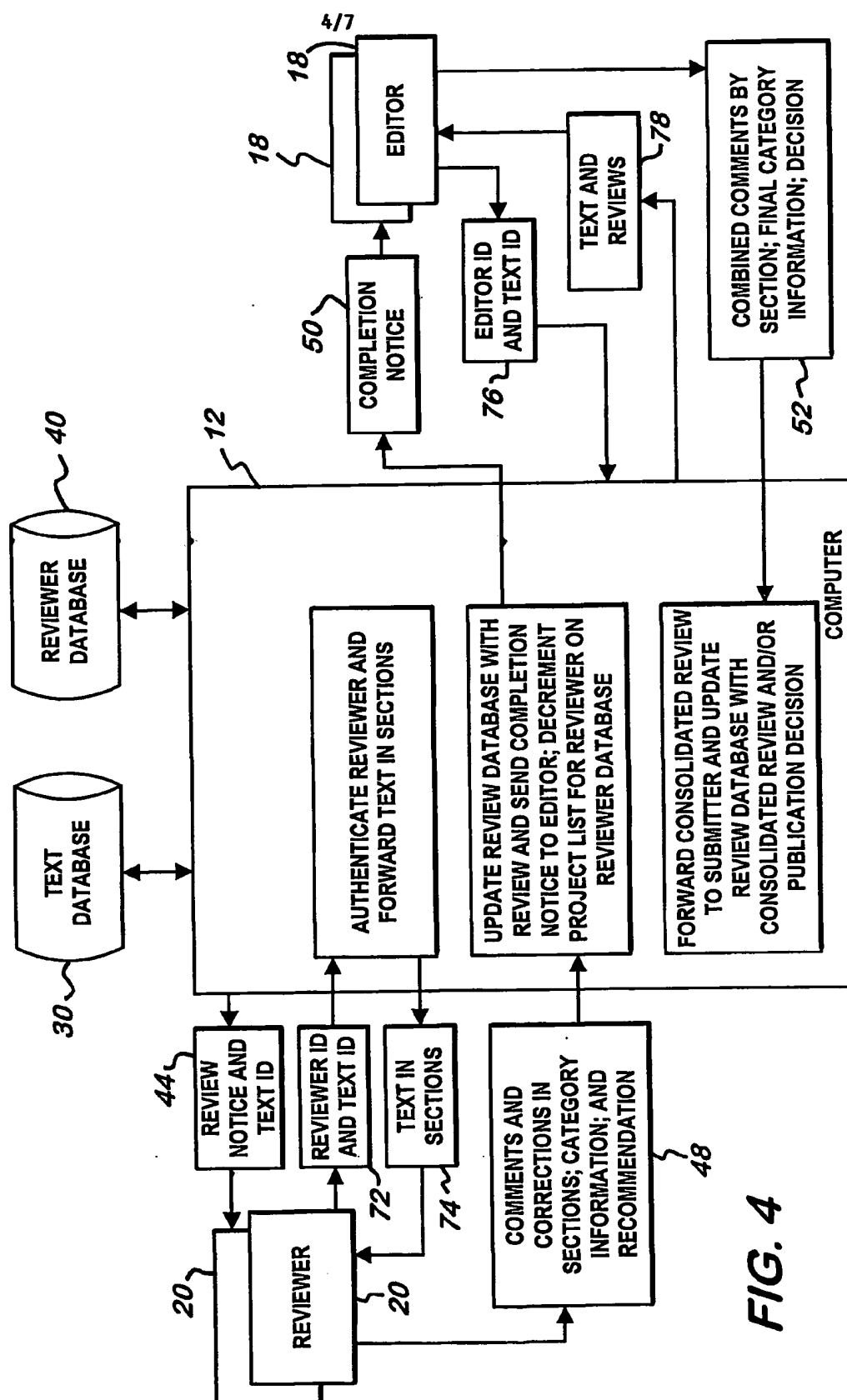
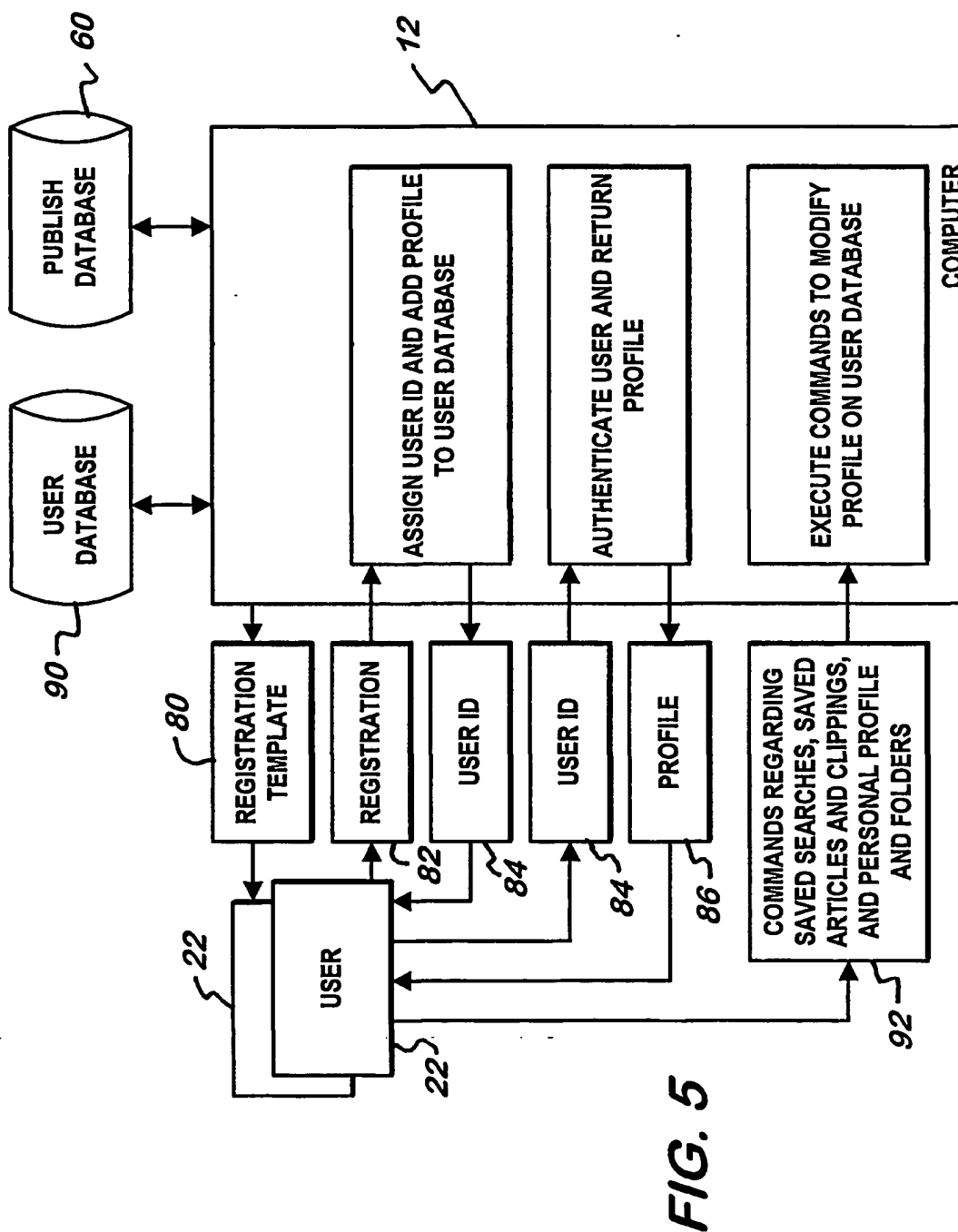


FIG. 4



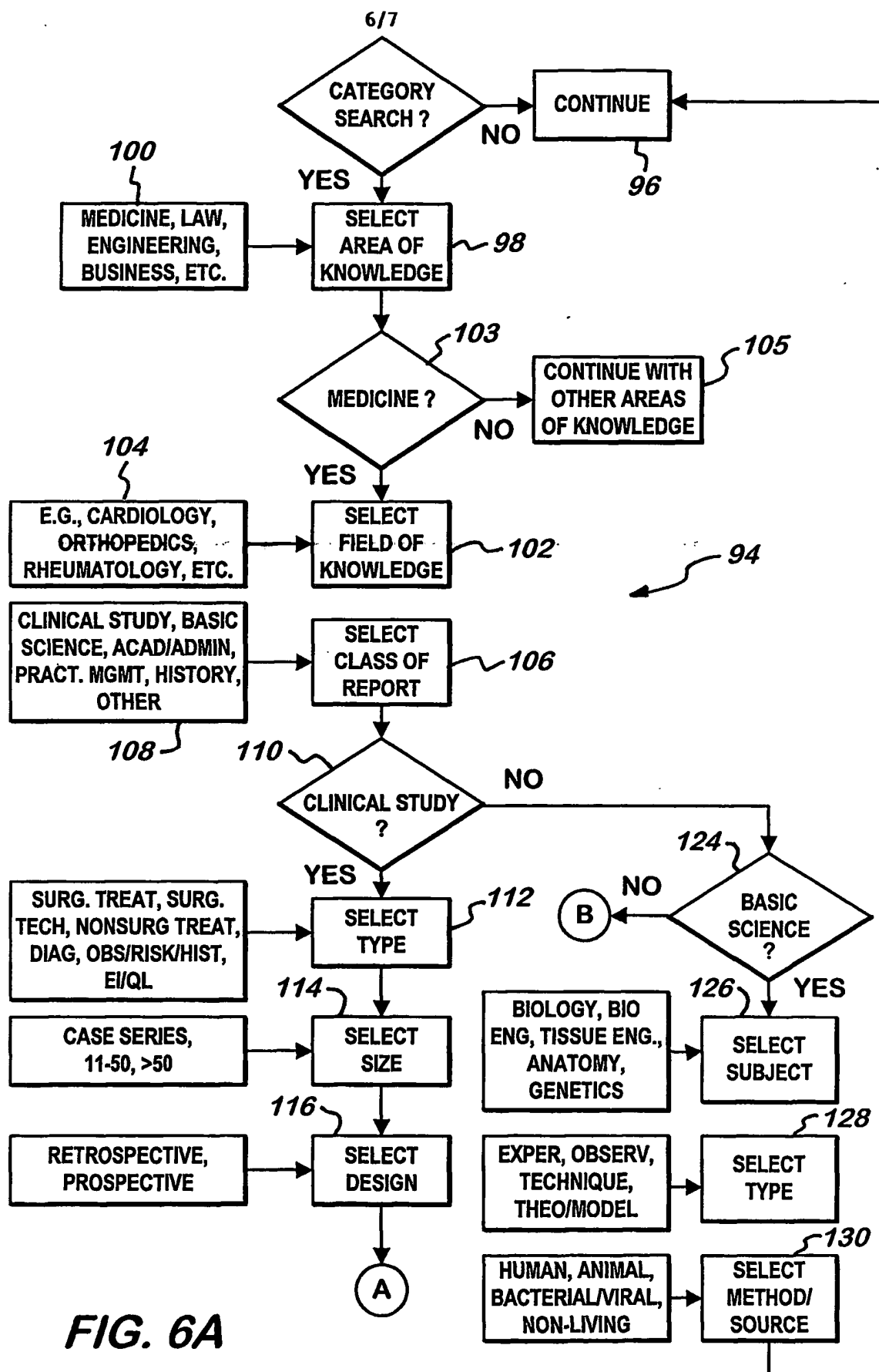


FIG. 6A

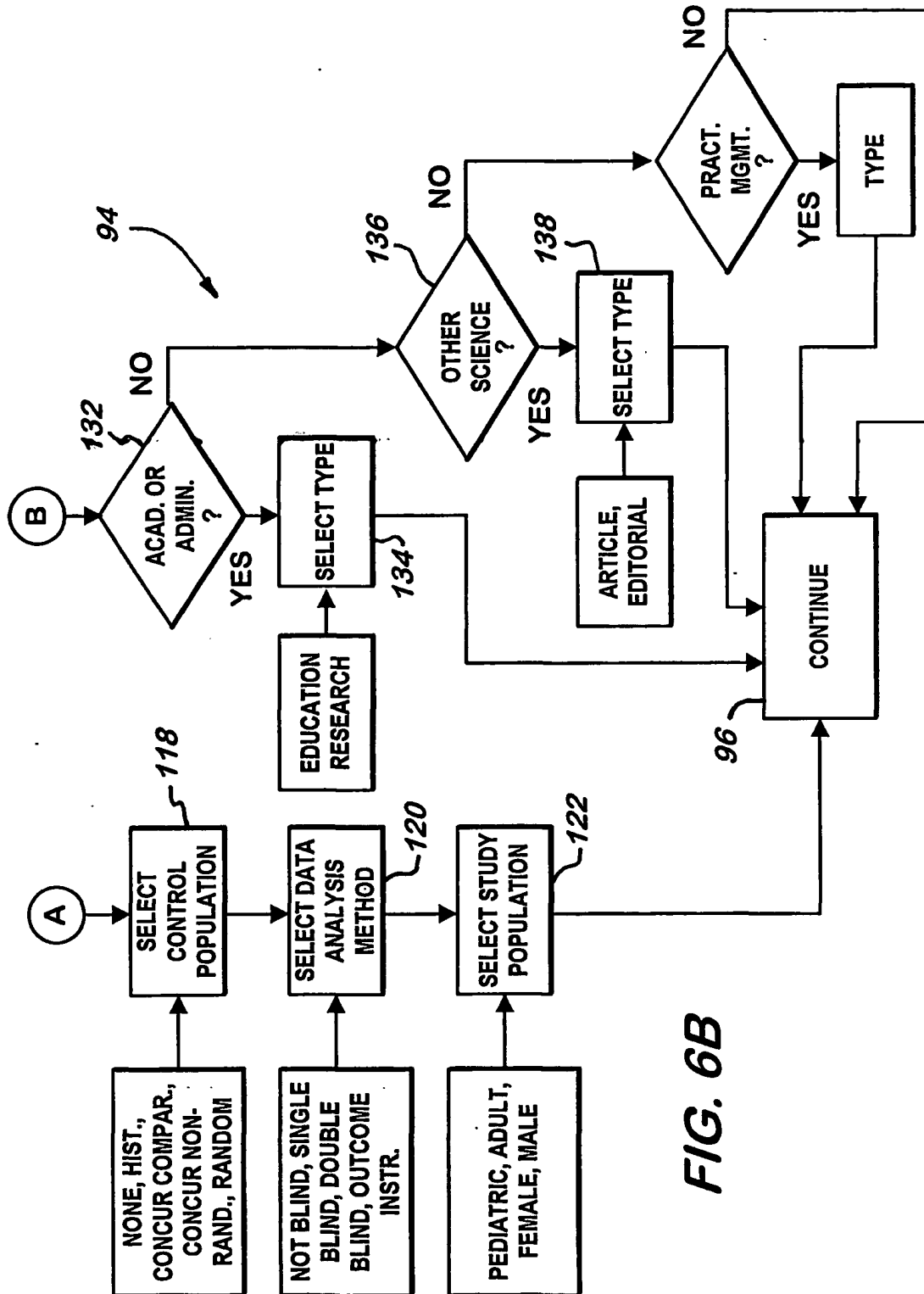


FIG. 6B

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/11188

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 15/16

US CL : 707/3, 500, 501, 530,

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/3, 500, 501, 530,

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, E	US 6,088,702 A (PLANTZ et al) 11 July 2000, column 6, lines 36-45, column 7, lines 1-67, column 8, lines 1-67, column 9, lines 1-67, column 11, lines 1-67.	1-46
Y	US 5,664,183 A (CIRULLI et al) 02 September 1997, column 2, lines 16-51, column 5, lines 1-67, column 6, lines 1-67, column 7, lines 1-67, column 8, lines 1-67.	1-46
Y	US 5,890,177 A (MOODY et al) 30 March 1999, column 2, lines 27-52.	1-46
Y	US 5,862,223 A (WALKER et al) 19 January 1999, column 6, lines 56-67, column 7, lines 1-67, column 8, lines 1-67, column 9, lines 1-67, column 11, lines 12-56.	1-46
Y	US 5,799,191 A (MORIYASU et al) 25 August 1998, column 1, lines 15-67, column 2, lines 1-24.	1-46
Y	US 5,706,452 A (IVANOV) 06 January 1998, column 1, lines 17-67, column 2, lines 1-67, column 5, lines 6-67, column 6, lines 1-36.	1-46
Y	US 5,628,011 A (AHAMED et al) 06 May 1997, column 2, lines 1-67, column 3, lines 1-67.	26-43
Y	US 5,873,107 A (BOROVOY et al) 16 February 1999, column 2, lines 2-44.	26-43
Y	US 5,734,883 A (UMEN et al) 03 March 1998, column 4, lines 1-67, column 5, lines 1-	26-43

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

30 AUG 2000

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

STEPHEN HONG

Telephone No. (703) 305-3900

Rugenio Zogan

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/11188

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/11188

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING: This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-25, 44-46 drawn to a Peer Review System.

Group II, claims 26-43, drawn to a Peer Review Research System.

The inventions listed as Groups I, and II do not relate to a single inventive concept under PCT rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of Group I is the Peer Review System claimed therein, while the special technical feature of Group II is the particular Peer Review Research System claimed therein. Since the special technical feature of the Group I, is not present in Group II, and the special feature of Group II is not present in Groups I, unity of invention is lacking.